

WHAT IS CLAIMED IS

1. A reader or transmitter and/or receiver for communication with transponders and including an antenna formed of a plurality of turns defining a central axis and an overall inner volume, wherein said antenna includes a first group of turns forming at least one first coil and a second group of turns forming at least one second  
5 coil, said first and second groups of turns being powered in phase quadrature and arranged so as to generate a total magnetic field with an approximately constant amplitude over substantially the entire length (L) of said antenna along its central axis and decreasing rapidly outside said antenna as it moves away from the latter.

2. The reader or transmitter and/or receiver according to claim 1, wherein  
10 said first group of turns is formed of three coils comprising one central coil and two end coils respectively placed at the two ends of the antenna, said central coil being powered with a phase shift of  $180^\circ$  relative to the two end coils, wherein said second group of turns is formed of two compensation coils arranged between said central coil and respectively the two end coils, so as to compensate for the decrease in, or  
15 cancelling out of the magnetic field between the central coil and the two end coils used for shielding said central coil, the two compensation coils being powered with a phase shift of  $180^\circ$ .

3. The reader or transmitter and/or receiver according to claim 1, wherein said first group of turns is formed of two coils powered with a phase shift of  $180^\circ$  and  
20 in that said second group of turns is formed of two coils also powered with a phase shift of  $180^\circ$ , the two coils of the first group being placed at a certain distance from each other, the distance being substantially equal to that separating the two coils of said second group, said first and second groups being positioned relative to each other such that each of said groups compensates for the decrease in, or cancelling  
25 out of the magnetic field between the two coils of the other group.

4. The reader or transmitter and/or receiver according to claim 2, wherein the first group of turns is powered with an electric current of a lower value than that of the current flowing in the second group of turns, the number of turns of each coil being provided such that said total magnetic field is substantially constant inside said  
30 overall inner volume of the antenna.

5. The reader or transmitter and/or receiver according to claim 3, wherein one coil of the first group of turns is partially superposed onto one coil of the second group of turns.